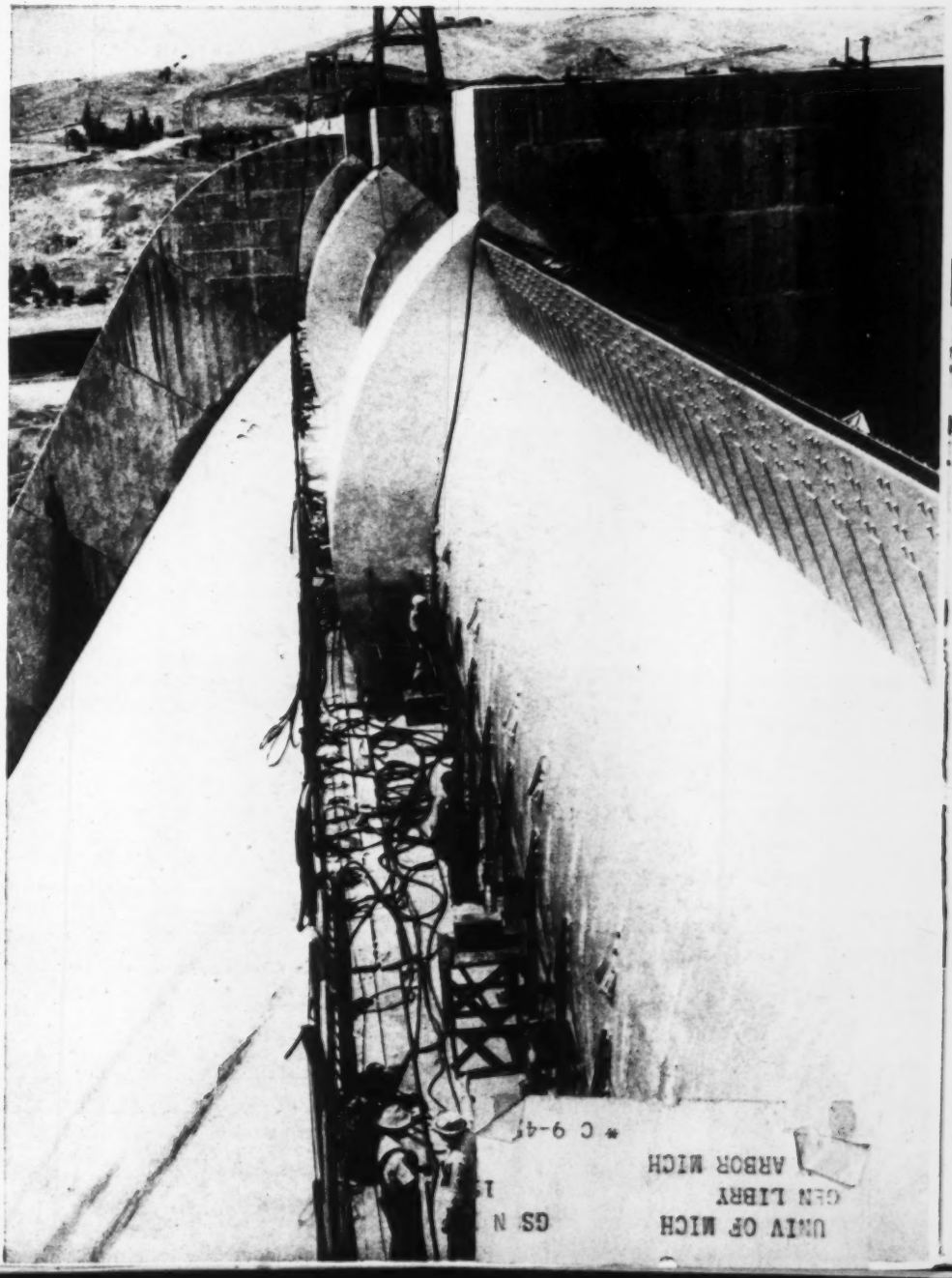
EERING
RARY

APR 13 1948

ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

NEWS ISSUE—APRIL 8, 1948



WATER CONTROL—Big drum gates at Friant Dam receive finishing touches before going into service to increase the Millerton Lake capacity

UNIV OF MICH
GEN LIBRY
ANN ARBOR MICH

Get the pump with all these features:

1. Pump and motor in ONE rigid frame, on ONE shaft, to eliminate alignment troubles.

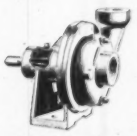
2. Drip-proof motor specially designed by Allis-Chalmers for efficient pumping service.

3. Bronze wearing rings easily and economically replaceable for long pump life.

4. Generous packing — five or more rings, reduce leakage and frequent servicing.

5. Plastic water seal gives positive control, and requires a minimum of attention.

THE *Electrifugal* PUMP



PEDRIFUGAL
The new A-C pump for flexible Texrope V-belt drive. Capacities to 500 gpm, heads to 100 ft.

SS UNIT
Close-coupled pump and motor units, made in 234 standard ratings, to 2500 gpm.

QUICK INSTALLATION — It's a complete, low-cost pumping "package" — ready to hook up and put into service for a wide range of applications. Can be mounted in any position — fits into close quarters. Made to handle most liquids, with capacities from 15 to 1400 gpm, heads to 500 ft.

HIGH EFFICIENCY — Pump and motor are engineered and built together as a smooth-working team, and Allis-Chalmers takes undivided responsibility for performance. Every Electrifugal pump is run and tested at the factory for efficiency, capacity and head.

IMMEDIATE DELIVERY — Many sizes of Electrifugal, PEDRIFUGAL and SS UNIT pumps are now in stock at convenient points. Phone or wire your nearest Allis-Chalmers office or dealer for latest information on stocks and deliveries. For description of the complete line of A-C centrifugal pumps, to 600,000 gpm, ask for Bulletin B6059D. ALLIS-CHALMERS, MILWAUKEE 1, WIS.

A 2382

Electrifugal, Pedrifugal, SS Unit and Texrope are Allis-Chalmers Trademarks.

ALLIS-CHALMERS A-C MILWAUKEE

ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment—Biggest of All in Range of Industrial Products

News of the Week

ENGINEERING NEWS-RECORD • APRIL 8, 1948 • VOLUME 140 • NUMBER 15

Fund shortage causing cut in Pacific engineer work

Army reports work being curtailed on Guam, Okinawa and in Japan as supply of money for military construction dwindles—Reviews work to date

Military construction operations in the Army's Far East Command must be reduced appreciably unless additional funds are made available in the near future, Maj. Gen. Hugh J. Casey, chief engineer, reported in Washington recently.

Operations at Guam, Okinawa, and to some extent in the Philippines, have already been curtailed considerably, with further reductions apparently necessary, General Casey said.

Shortly after the end of the war, there were some 300,000 engineer troops under the command of Gen. Douglas MacArthur, but this number has now been reduced to about 22,000 —about one-fourth of them in Japan. Since this force includes mapping, depot maintenance troops and many special units not used on construction, little actual manpower is available for building operations.

Japanese contractors are being employed extensively on construction operations in that country, but even this requires well-trained U. S. supervisory forces. Standard plans have been prepared by General Casey's office for the principal construction requirements in Japan and Korea, and no U. S. contractors have been engaged. The chances of work being awarded to American firms appear "slim".

Japan program large

During the present calendar year, $50,275,000 to $70,000,000 of Japanese construction will be needed.

Most of this will be housing for U. S. troops, their families, and civilians, with some continuation of operational construction, and considerable utility construction is also involved.

Most Japanese hydro-electric projects were not damaged too severely during the war, but the seasonal fluctuation in precipitation limits their output. Lack of coal has also limited the operation of standby steam plants, and this has caused the greatest hardship from the standpoint of adequate power. Some time ago only 1,000,000 tons of coal were available monthly for all of Japan—compared to "normal" requirements of more than three times that amount. Currently, about 2,500,000 tons are available, and as a result, supplies of reinforcing steel, cement, nails and lumber are available for Army work from local sources.

Among the major construction jobs done by U. S. forces are the building or rebuilding of a large number of airdromes. In cooperation with the U. S. Air Force, engineer troops are photomapping most of Japan.

Most difficult working conditions in General MacArthur's theater have been in Korea, where housing continues extremely short both for American forces and the local population, General Casey added. Utilities that have insufficient capacity are the next greatest obstacle, and enlargement of water supply, electricity, and sewage disposal facilities has been both difficult and slow.

Despite the severe working conditions, much highway and railroad reconstruction has been carried forward in Korea, but a great deal more is needed.

Commenting on activities of engineer forces in the military construction program in the Philippines and on Guam and Okinawa (as outlined in *Engineering News-Record* on Feb. 26, vol. p. 320), General Casey said that many of these operations are now being slowed down or deferred indefinitely. To date, 5 percent of the construction forces on Guam have been demobilized, and on Okinawa between 10 and 15 percent of the forces have been discontinued.

Most of the construction operations now under way in the Far East Theater are being financed with money made available during the war or immediately afterward. As yet, Congress has passed no military construction authorization bill for the Army for the present fiscal year (which began last July 1) nor has it appropriated funds for construction for this fiscal year.

Court rules against N. C. pollution law

The North Carolina State Supreme Court in an opinion handed down March 24 ruled unconstitutional a state law prohibiting pollution of streams. The court, however, suggested that the state legislature—which does not meet again until January, 1949—pass a new law.

The ruling was returned in a case in which the Glidden Co., of Caldwell County, was convicted in Recorder's Court of violating the law and ordered to "desist from discharging into the streams of the state any substance created from its mining operations." The firm appealed the case to Superior Court, where its contention that the law was unconstitutional was upheld, and it went to the State Supreme Court (*ENR* March 18, vol. p. 404).

The company contended that the law, enacted in 1915, exempted corporations chartered before March 4, 1915, and that this provision therefore constituted discrimination against firms chartered after that date.

In its ruling the Supreme Court said that "if the statute is upheld, we shall have the spectacle of one corporation doing things denounced and punishable as a crime, and another, side-by-side and on the same stream, doing the same thing with impunity.

"The contention of the statute is offensive to the constitution in that without due process of law it deprives the defendant, or may deprive him or any other person, of property rights.

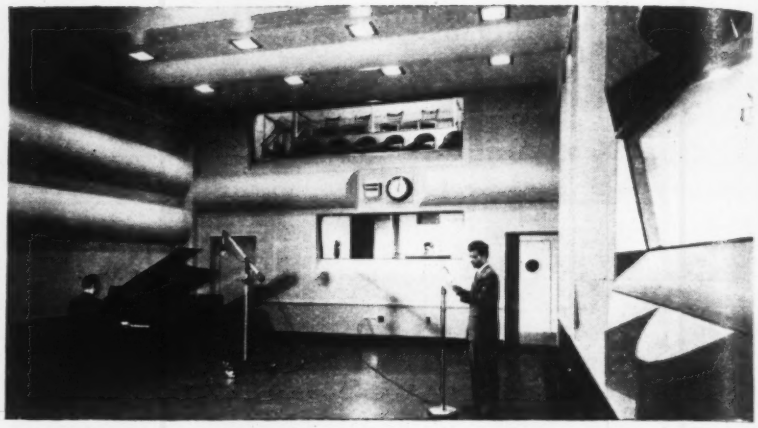
"No matter how long the practice of polluting the waters by waste products from mining or manufacturing has been practiced, there is no proscription against the state when it sees fit to remedy the evil."

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the enginering and construction front during the week.

Public construction — Preliminary plans have been filed at Albany for the $6,000,000 Panther Mountain regulating reservoir on Moose River in *Herkimer County, N. Y.* . . . The Bureau of Reclamation is making advance surveys of a damsite on Beaverhead River near *Armstead, Mont.* . . . Construction starts soon on the $2,000,000 Chattahoochee Valley Hospital at *Langdale, Ala.* . . . Col. B. B. Talley, Louisville, Ky., Army district engineer, has authorized F. M. and Geo. L. Hart to proceed with the initial $407,721 contract on the first of three sections of the $6,000,000 floodwall on the Ohio River at *New Albany, Ind.* . . . Razing of old buildings is starting preparatory to the erection of a $1,000,000 addition to the Washington Sanitarium and Hospital, *Takoma Park, Md.* . . . Congress has received proposed legislation to authorize building a new $18,665,000 federal courts building at 3rd Street and Constitution Avenue, N. W., *Washington, D. C.*

Industrial construction—Atlantic Refining Co. will receive bids April 20 for a $3,000,000 office building at *Dallas, Tex.* . . . Pennsylvania Power Co., *New Castle, Pa.*, plans to spend about $2,000,000 this year for construction . . . A construction program costing $6,457,000 is being planned by the Scranton Electric Co., *Scranton, Pa.* . . . The Rochester Gas & Electric Corp., *Rochester, N. Y.*, said it must spend a total of $50,000,000 for expansion during the next five years to keep ahead of demand for its service . . . The South Lake Realty Corp., Chicago, plans early construction of a 400-room resort hotel fronting *Lake Pontchartrain, La.*, at a cost of $3,000,000 . . . The H. K. Ferguson Co. will step up employment to more than 2,000 building craftsmen at *Brookhaven* National Laboratory, on *Long Island, N. Y.* . . . Irving Maidman reports that work will start shortly on a 25-story office building containing more than 1,000,000 sq. ft. of space at 305-35 West 42nd Street, in midtown Manhattan, *New York City.*



***Sound Control**—Perforated wallboard and cylindrical sections of plywood provide effective control of sound in one of the broadcasting studios newly completed for radio station KOMO, Seattle, Wash., by The Austin Co. One of the first structures for radio broadcasting built since the war, the studio is a part of a two-story, reinforced-concrete structure. Three studio units are "rooms within rooms" with floors, ceilings and walls insulated from surrounding structural elements. The building is air-conditioned throughout.*

Highways—Scheduled improvements in the *Virginia* highway system will have to wait till winter damage is repaired . . . The new $1,800,000 Canal street bridge in *Chicago* has been opened after seven years of construction work. . . . Massachusetts Attorney General Barnes has advised the legislative committee on Highways and Motor Vehicles that his office will hold unconstitutional all pending bills framed to postpone or prevent construction of the Mystic River Bridge.

Housing—Construction of a 64-unit $500,000 cooperative home project for veterans has started on Dorr Street, near *Toledo, Ohio.* . . . Builders at *Spokane, Wash.*, are starting 400 homes to cost $3,000,000 . . . W. P. Christenson will start 69 homes soon on a 25-acre tract at *Hammond, Ind.* . . . Curtis Bailey Co. is building a $1,000,000 home development in the Mt. Airy section of *Philadelphia, Pa.*, and in the northeast section of the same city Vance Construction Co. will build $1,585,000 worth of homes . . . Allentown Parkview Corp. has let a $1,400,000 contract for a garden-type apartment development at *Allentown, Pa.* . . . Russell G. Lloyd will build a $3,000,000 development at Park Manor, near *Harrisburg Pa.* . . . Del E. Webb Construction Co. is making a start on a $20,000,000 housing project at *Tucson, Ariz.*, and also will build a 4-story, 250-room addition to Hotel Westward Ho in *Phoenix.*

Water supply and sewers — *Portsmouth, Ohio*, will sell $1,500,000 bonds to finance a new filtration plant and waterworks improvements . . . *Indianapolis, Ind.*, Water Co. has plans for a $350,000 development to serve a business and residence section at the south edge of the city . . . *Camden, N. J.*, is taking bids for test borings for its $4,000,000 sewage disposal plant . . . *Chester, Pa.*, received bids of nearly $3,500,000 for a new water supply.

THE COVER PICTURE

Finishing touches are put on one of three huge drum gates, recently installed at Friant Dam on the San Joaquin River in California.

The gates are 100 ft. long and 18 ft. high, and will be used to add 84,000 ac ft. to the capacity of Millerton Lake, behind the dam. The dam is being completed by the Bureau of Reclamation as part of its Central Valley Project.

The gates were built by the American Bridge Company.

ENGINEERING NEWS-RECORD. Published every Thursday. **Publication office: 99-129 North Broadway, Albany 1, N. Y. Return postage guaranteed. Editorial and Executive Office: 330 West 42nd St., New York 18.** Vol. 140, No. 15. Price 35c per copy. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd Street, New York 18, N. Y. Subscriptions, United States and U. S. Possessions, $6.00 for one year, $9.00 for two years, $12.00 for three years. Canada $7.00 for one year, $11.00 for two years, $14.00 for three years. Latin American countries $10.00 for one year, $16.00 for two years, $20.00 for three years. All other countries, $20.00 for one year, $30.00 for two years, $40.00 for three years. Please indicate position and company connection on all subscription orders. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in the U.S.A. Cable Address: "McGraw-Hill New York." Member A.B.P. Member A.B.C. Copyright 1948 by McGraw-Hill Publishing Company, Inc. All rights reserved. JAMES H. McGRAW, Founder and Honorary Chairman; JAMES H. McGRAW, JR., President; CURTIS W. McGRAW, Senior Vice-President and Treasurer; JOSEPH A. GERARDI, Secretary; NELSON BOND, Director of Advertising; EUGENE DUFFIELD, Editorial Assistant to the President; and J. E. BLACKBURN, JR., Director of Circulation. District Managers and Branch Offices: Fred G. Hudson and L. H. Hunt, 520 N. Michigan Ave., Chicago 11; 738-39 Oliver Building, Pittsburgh; J. W. Otterson, 68 Post St., San Francisco 4; Aldwych House, London, W. C. 2, England; Washington: J. M. Spackman, New York; A. B. Cozzens, Philadelphia; E. E. Duff, Jr., Cleveland; B. F. Horn, Detroit; W. E. Donnell, St. Louis; R. N. Phelan, Los Angeles; W. G. Payne, Boston; Ralph Maultsby, Atlanta, Ga.

Navy to organize reserve battalions to supplement construction units

Two reserve groups to be formed for active participation by reserve personnel, with openings for all ranks in regular program

The Civil Engineer Corps of the U. S. Navy last week announced details of a program to establish a large reserve construction force, similar in character to the Seabee organization during the last war.

To be known as the Construction Battalion Reserve, the program will be composed of two reserve groups, one known as "volunteer Seabee units" and the other "organized Seabee companies." Both groups will consist of officers, warrant and petty officers and enlisted men holding reserve Seabee ratings.

The volunteer units will be divided into two echelons, the first comprising men who are willing to meet regularly for participation in a seminar program of lectures prepared by the Bureau of Yards and Docks; and the second for those who do not wish to participate fully in the prescribed training program. First echelon personnel will be available for immediate mobilization without further training.

The organized Seabee companies have recently been authorized on a pay status with a limited number of officers and enlisted men. One pay drill per week is authorized for the remainder of the fiscal year 1948 and each company is expected to form an organized nucleus of a construction battalion which can be expanded to full strength on mobilization by the addition of appropriate ranks and ratings from the volunteer units. Naval reserve training centers will be assigned for use of the construction battalion companies in their training. Each organized company under this program will be composed of five officers and 40 enlisted men.

The entire program is to be directed by Capt. O. A. Sandquist, who is special assistant for reserves to Rear Admiral J. J. Manning, chief of the bureau.

In all, 123 reserve companies are planned. Nine of these will be located in the First Naval District; seventeen in the Third Naval District; seven in the Fourth Naval District; five in the Fifth and five in the Sixth Districts; four in the Seventh; fifteen in the Eigth; eleven in the Eleventh; twelve in the Twelfth; eight in the Thirteenth, and three in the Potomac River Naval Command. The largest number of companies are assigned to the Ninth Naval District, where 27 companies will be formed.

OK Arizona groundwater control code

A groundwater control code to apply in the critical areas of Arizona was passed last week after two previous attempts by the legislature.

The lawmakers also approved a $32,000 fund to pay for enforcement of provisions of the act.

Somewhat weaker than an iron-clad code proposed some months ago by Governor Sidney P. Osborn (*ENR* Jan. 29, vol. p. 144), the measure provides for conservation of the state's dwindling groundwater supplies. It defines groundwater as "all water of underground streams or channels, artesian basins, whose existence or whose boundaries may be reasonably established," and sets up conditions under which applications for well drilling may be presented and water pumped. The measure provides penalties for violations and provides for enforcement by the state land commissioner.

Adopted after 41 days of legislative bickering, the code aligns the state with demands of the Bureau of Reclamation that Arizona act on its own behalf before it may benefit from the proposed $78,000,000 central Arizona project. Passage of the measure was spurred by a continuing drought which has seriously threatened a large part of state's agricultural industry.

Actually, the issue has been a matter of debate before the legislature for more than ten years and was bitterly fought by large land owners whose private wells have been pumping underground reservoirs. However, the code was supported by more than 80 percent of the state's population.

Actual enforcement remains months away, observers said. The bill was passed by both houses without an emergency clause and therefore it cannot become law until 90 days after it receives the governor's signature. Additionally, the state land commissioner cannot set up a "critical" area until a month after the effective date of the act, and observers said that in most cases assembling of the necessary data would delay action even longer.

Between the present and the effective date of the act, there will be no restrictions on well drilling.

Rent control extended to March 31, 1949

President Truman has signed the rent-control bill (S. 2182) extending control to March 31, 1949, and eliminating the requirement that permission be obtained from the Office of the Housing Expediter for construction of amusement and recreational facilities (*ENR* April 1, 1948, vol. p. 477).

Removal of this regulation is expected to make little change in the type or volume of construction for 1948. Since July 1, 1947, the Housing Expediter had denied applications for $90,500,000 of amusement projects while giving approval to $29,000,000 worth of such work.

Building facts body issues first pamphlet

The first of a series of pamphlets to inform the general public on the performance and progress of the construction industry has been issued by the newly-organized Construction Industry Information Committee (*ENR* Feb. 12, vol. p. 229).

Entitled "Who Can Afford Our New Housing?", the booklet presents statistics purportedly showing that in 1947 private enterprise built homes within reach of at least 75 percent of U. S. families.

The booklet attempts to prove that homes were produced "almost in exact proportion for families in all income groups, except those with incomes of less than $1,000 and those in the highest income brackets." The estimates are based on the assumption that a family can afford to pay two and one-half times its income for a house.

The booklet may be obtained from the committee, Room 706, 815 Fifteenth St., N.W., Washington, D. C.

FHA issues new rules for housing insulation

A new bulletin (No. 771) on sheathing papers and vapor barriers used in housing construction was issued to Federal Housing Administration regional offices last week.

It is now an FHA requirement that in all frame walls where insulation is used in the stud space, a vapor barrier must be applied on the warm side of the wall. Heretofore, FHA required a sheathing paper of the "breather type," i.e., one of low vapor-resistant qualities. Now it has relaxed this requirement.

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Construction aid to Greece is curtailed—India takes steps to increase its steel production—Plan $25 million port improvement for Calcutta—Other foreign news

To permit greater emphasis on military operations, the U. S. aid program for Greece has been revised to reduce the cost of reconstructing roads, ports, canals, railroads and airfields from $35,400,000 to $20,500,000, according to a March 11 report of a subcommittee of the House Select Committee on Foreign Aid.

Except for the fact that a considerable loss would have resulted in work already done, operations would have been cut even more, the report said.

Th program is being carried forward under Public Law 75 of the present Congress. With the reductions it will consist of: $7,650,000 for roads, $4,818,754 on ports, $6,027,500 for railroad work, $681,246 to put the Corinth Canal back in service, $122,500 for airfield reconstruction, and $1,200,000 for overhead operations of the U. S. Corps of Engineers. Some $2,000,000 of housing is being built by the Army as a separate operation. Additionally, $159,000,000 is being spent for military and $12,850,000 for naval operations.

The reconstruction work now scheduled to go ahead is far below that outlined last summer (*ENR* July 31, 1947, vol. p. 162, and Aug. 14, 1947, vol. p. 227). At that time large contracts were awarded to U. S. firms for construction operations.

The reductions have been dictated by the shifting of emphasis from reconstruction to purchasing equipment for the Greek army and supplies for refugees. Moreover, reconstruction work in many sections of the country has not been possible because of guerilla activity in those areas.

Industrial Expansion . . .

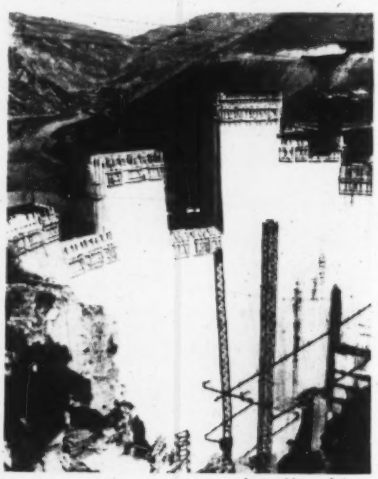
India—The Indian Ministry of Industry and Supply is trying to decide where to locate two new 500,000-ingot-ton steel plants to make up a deficit of about 1,500,000 tons of steel each year.

Last year India produced only 960,000 long tons of steel, most of which came from the Tata Iron & Steel Works at Jamshedpur. Against this meager output is a current demand officially estimated at 2,500,000 long tons. Imports last year amounted to only 20,000 long tons.

Both of the government-sponsored plants (designed to permit doubling their capacity later) may be built in the northeast. It seems probable that one will be in Bihar and the other either in the United Provinces or in the Central Provinces—all within easy railroading of the high-grade coal fields of Bihar.

Coal is the key to Indian steel and new plants will be located where coal is readily available. Madras Presidency in southern India has more ore than coal, but surveys show plenty of the accessory ores—limestone, dolomite, fireclay, magnesite and chromite.

South Africa—The Anglo-Transvaal Consolidated Investment Company, Ltd., has applied for a license to build a plant capable of producing 60,000,000 gal. of gasoline and 10,000,000 gal. of Diesel fuel a year. The plant is to use a process developed by Hydrocarbon Research Inc. Production will be from coal and shale. Available information indicates that the company expects first production in two or three years.



Acme Newspictures

Slight Delay — German reparation money from World War I was used 20 years ago to start work on Castillon Dam in southeast France, but when reparations ceased, work was abandoned. Eighteen years later—in 1945—the French government undertook completion of the work. An arch dam, 325 ft. high and 600 ft. long at the crest, it will serve a power plant which will contain four 17,000 kva. turbines. Located on the Verdon River, a tributary of the Durance, the dam will also help to regulate stream flow in the valley of the Verdon River—a tributary of the Rhone River.

Transport . . .

Puerto Rico—The 1949 public improvements program to be undertaken by the insular department of the interior, now under consideration by the legislature, involves the expenditure of $6,000,000 of insular and federal funds for the construction and improvement of roads and urban by-pass roads.

India—Expenditure of nearly $6,000,000 on airport expansion and construction has been approved by the Indian government for the current fiscal year, and plans call for the outlay of another $40,000,000 within the next ten years.

At present India has only three airports of international rating—Bombay's Santa Cruz, Delhi's Palam, and Calcutta's Dum Dum—and all are slated for further work. In addition she has seven "major" fields capable of handling planes up to 70,000 tons weight. These are at Ahmedabad, Allahabad, Luckow, Madras, Nagpur, Patna and Vizagapatam.

Pakistan proposes to develop further her one international field at Karachi, to develop Chittagong in Eastern Pakistan to international rating, and to expand eight others.

Australia—The Moorabbin Aerodrome, Melbourne's second official airport, is expected to be ready for traffic in July. The port was designed to relieve congestion at Essendon airport, now the city's principal port of entry.

Power . . .

Australia—With the speeding up of construction on the Kiewa hydroelectric project in Victoria, (*ENR* March 11, vol. p. 386) State Electricity Commission engineers have redesigned many construction rigs.

A jumbo mounting six drifters was built for driving part of the 12,000-ft. headrace and 6,500-ft. tailrace tunnel. Although it performed satisfactorily, the rig was redesigned for the No. 4 headrace tunnel—which measures 15

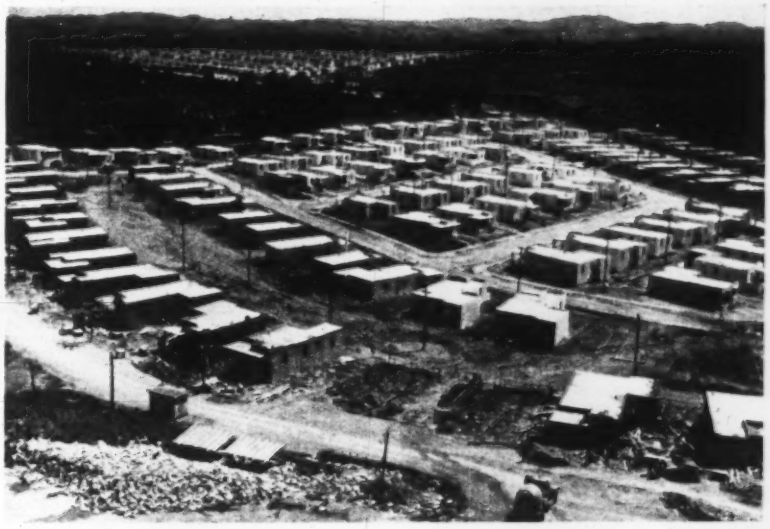
ft. in both cross sections—to carry seven drifters for drilling the face and two on the sides for drilling side swipes and dowel holes.

This new jumbo is 25 ft. long, 11 ft. high, 5 ft. wide with side platforms down, and 12 ft. across with platforms elevated. It is mounted on 36-in. gage bogies and has air receivers from which compressed air is reticulated through pipes to the drifters.

Egypt—The government is inviting bids for the construction of the Kalkha electric power generating station and for an electrified pumping station at Ramadi.

The Kalkha station will contain two steam turbo-generator units, each capable of producing 12,500 kw., and the Ramadi station will contain four main pumping units, each with a discharge capacity of two cubic meters per second against a static lift of 6.3 meters.

Bids will be received until June 15 by the director general, mechanical and electrical development, Ministry of Public Works, Cairo.



Press Assn. photo

***Housing Answer**—To solve a housing shortage characterized as desperate by government leaders, the Puerto Rico insular government and private interests are pushing a series of housing developments throughout the island that will see about $60,000,000 expended to produce an estimated 15,000 homes. These basementless, poured-concrete, four-and-five room homes are under construction at Caparra Heights, above San Juan.*

Sanitation . . .

Mexico — Guadalajara, capital of Jalisco State and Mexico's second largest city, has been granted a loan of $7,250,000 by the semi-official National Urban Mortgage and Public Works Bank to modernize and expand its waterworks and sewerage systems, and Monterrey, capital of Nuevo Leon State, on the eastern Texas border, is to spend $615,000 to improve and expand its waterworks.

Argentina—A fresh water aqueduct, said to be the longest in South America, has been put into service in northern Argentina.

Built by the Public Works Ministry, the aqueduct runs from Rio Tercero to the city of San Francisco in Cordoba province—a distance of 166 kilometers. It is built of reinforced concrete pipe. Two reservoirs have been built in connection with the system, one for storage and one to equalize the flow and for a chlorination center.

Ports and Harbors . . .

Australia—The Melbourne Harbor Board has saved 20,000 ft. of timber logs and the same length of pile driving in the reconstruction of No. 9 Pier, Victoria Dock, by splicing new logs to 600 pile stumps.

Examination of the dilapidated old substructure revealed that the ravages of marine organisms were confined to the upper sections of the piles. Divers using penumatic submarine saws cut off the riddled sections at the mudline. Logs were then turned to fit the pile stumps and cast steel sleeves were fitted to the lower ends. The assembly was placed in position on the stumps and secured with a pile hammer.

Both apron and decking of the reconstructed pier are of concrete. The transit shed has been raised 4 ft. to provide more clearance for motorized handling machinery under trusses and door heads.

India—A program of expansion and modernization of Calcutta's port facilities to cost an estimated $25,000,000 has been started by the port authorities including: Construction of three new berths at the King George's Docks, revamping of the railway marshalling yards, laying of 30 miles of paved roads and viaducts, erection of a new grain depot, building of new bridges of the Kidderpore Docks, and construction of a housing estate which ultimately will quarter all the 18,000 persons employed by the Port Commission.

Miscellany . . .

Italy—The Italian government has finished blueprinting a national irrigation and reclamation program designed to salvage more than 100,000,000 acres of land.

An estimated 1,875,000 tons of cement, 121,000 tons of iron, 90,000 tons of machinery, and 105,000 M b. ft. of lumber will be needed for the projects.

Lebanon—In connection with its plans to build a new courthouse in Beirut, the government of Lebanon has extended to May 5, 1948, the closing date of its contest open to architects everywhere. The first prize is $3,000, or the winner may elect to undertake the actual building of the courthouse on a percentage-of-the-cost basis. The second prize is $2,000, the third $500, and there are smaller prizes. Printed specifications are available at the Consulate General of Lebanon, 12 East 68th Street, New York 21, N. Y.

Netherlands—A large-scale investigation into sound and heat insulation is being conducted in a group of apartments now under construction at Rotterdam, under direction of the Netherlands Research Committee for Sanitary Engineering.

An entire block of three-story apartments is being built, each "flat" being constructed of slightly different materials, with varied heating plants, insulation and different methods of construction. Heat insulation measurements will be made on the flat roofs, outer walls and windows, and sound measurements will also be taken to determine the acoustical properties of the materials used and the manner in which they were installed. The buildings will supplement laboratory experiments.

Plan government center for New York state

New York State last week moved closer toward the development of its new "campus-type" government center with the selection of a 400-acre site in Albany on which the state plans to erect buildings in which to house many of its departments.

Contracts for making all necessary surveys of the property and for the preparation of land acquisition maps have been awarded to Nordin J. Shambrook of 11 N. Pearl Street, Albany.

Acquisition of site was authorized by the 1947 legislature which appropriated $350,000 as the initial outlay for the cost of land appropriation. An additional $360,000 was appropriated by the 1948 legislature. Determination of buildings to be erected on the site and the layout will be made later.

Iowa calls bids May 25 for state offices

Despite a request from the Iowa Master Builders Association asking that start of the project be delayed "six months to one year", the state office building committee has voted to call for bids May 25 on a new $3,500,000 state office building.

The six-story structure of concrete and steel, with Bedford stone trim, is to be erected on the statehouse grounds at Des Moines. The building first was proposed in 1941 when the state legislature appropriated $1,600,000 for it. Subsequent legislatures added additional funds.

The Master Builders request was conveyed to the committee by Walter Moeller, Des Moines, association secretary who urged the delay "because of the shortage of workers in the skilled building trades in Des Moines and the heavy construction program we already have ahead for 1948 and early 1949."

Tinsley Higgins and Lighter, Des Moines, are the architects.

Legion approves plans for Indiana war memorial

New bids for construction of the proposed $2,500,000 national headquarters for the American Legion in Indianapolis, Ind., may be asked in May, legion officials have announced. The project was stopped a year ago by high construction costs. Modified plans have been approved by the Indiana World War Memorial commissioners, to bring costs within the $2,500,000 appropriation for the structure.

Award synthetic fuel plant construction contract

The Department of the Interior said last week that it had awarded a $4,413,000 contract to the Koppers Co., Inc., for design and construction of a plant for the production of synthetic fuel near Louisana, Mo.

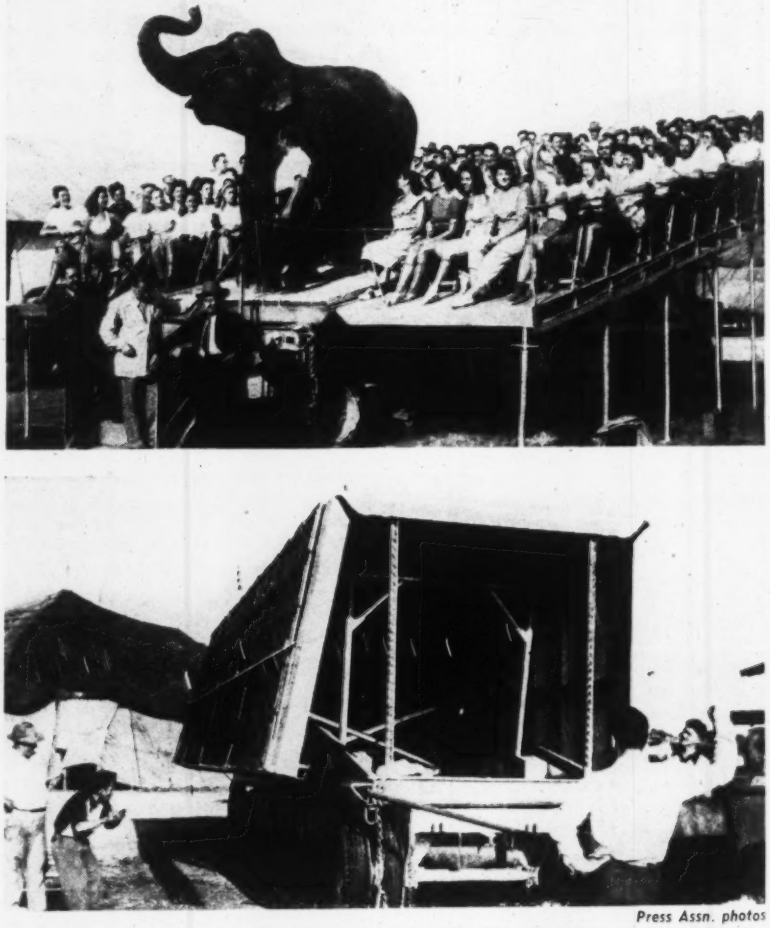
The plant—which will produce oil from coal—is the third and last of the demonstration, or semi-commercial scale, plants planned under the synthetic liquid fuels research and development program of the Bureau of Mines. It will be built under terms of a bill recently passed by Congress to launch the United States government on a program of development of synthetic fuels (*ENR*, March 11, vol. p. 383).

Start excavation for Little Rock VA hospital

Excavation work started recently for the new $9,800,000 Veterans Administration hospital, at Little Rock, Ark.

The hospital site contains 16 acres and structures to be built include the main building, laundry, heating plant and garage. The 500-bed general medical hospital will be eleven stories in height, topped by a 2-story tower containing machinery and electrical equipment. Brick work is expected to begin this summer.

Contractors are the Pattie Construction Co., Kansas City Mo., McDonald Construction Co., St. Louis, Mo. and the Manhattan Construction Co., Washington, D. C.



Press Assn. photos

***Seat Trick**—Part of the "act" of the Ringling Brothers-Barnum and Bailey circus is this collapsible seat platform, which travels the roads as a capacious truck-trailer, then unfolds into a platform seating 300 patrons (and one elephant if necessary). Three steel sections which fold around the trailer body in transit include folding chairs bolted to the platform and a ramp provides access. The trailer forms the main support when seats are in use, supplemented by steel posts at the sides.*

Random Lines *from an editor's notebook . . .*

. . . In which dinner table conversation centers around the structural problems involved in interconnecting buildings

A discussion about joints between buildings was going full blast across the dinner table, prior to the address of the evening. The setting was the San Francisco Engineers' Club and Henry Brunnier was explaining design of the joint between original and new portions of the San Francisco Postoffice Building.

In this structure the spread footing rests on a 20-ft. depth of sand underlaid by a 2- to 2½-ft. stratum of peat.

"This building," Brunnier said, "was completed in 1895 and withstood the 1906 earthquake very well. Then in the early '30s an addition was built in which it was important that the floors be kept on the same level as floors in the old structure. The problem was to avoid differential settlement." He explained that the old building probably had consolidated and packed down the peat layer as far as it would go. Thus for the addition he used a pile foundation with the piles driven through the layer of peat and designed to carry the load without settlement. A sheetpile cutoff wall was driven along the boundary of the two buildings to prevent undermining since the piling for the new building had to be jetted.

Just a few days ago, Brunnier said, he made an inspection of this joint, now 16 or 17 years old, and observed that absolutely no differential settlement has occurred. This checks the assumption made when the design was worked out and affords encouragement for those who face similar problems.

More ideas about joints between buildings came from Fred Hall, designer of a new wing for the 15-story PG&E Building. Most of those present knew this structure to be an L-shaped steel frame abutting on its east side against the Matson Building which has almost the same height, a similar L shape and is also on piles. Differences in settlement of the two buildings have caused slight movement and some spalling along abutting edges at the top. This settlement is a factor to be reckoned with in all tall buildings along lower Market St. because all are on long piles that develop bearing value by friction alone. The soft material through which they are driven is 350 to 400 ft. deep.

Experience with this foundation is that settlement decreases with age. The PG&E Building settled some 3 in. in the first 25 years, most of this in the first 10 years. It is still going down, but now very slowly.

The new PG&E wing, Hall said, differs widely from the old structure. The old building is on separate footings; the wing is on a solid concrete mat that extends under the entire structure. The old building is three stories higher and was designed for wind load only, while the wing is designed for horizontal forces of 0.5 *g* and is stiffened by concrete walls.

How to join the pieces

In consideration of the soft bottom as well as differences in foundation types and relative stiffness, the question of how to join old and new construction, Hall said, was largely a matter of judgment. The conclusion finally reached was to design the wing as a separate building without any rigid connection to the existing structure. A space 6 in. wide was left between the two facing walls and access is only at corridors where the contacts are sliding plates that permit relative movement in vertical and horizontal planes.

After Hall's comment the talk swung to the wing soon to be put on the 26-story Standard Oil Building. Here the interesting question is whether or not to tie the new wing to the old building. The general opinion was that since the new foundation will be a continuous mat with peripheral sheetpiling, as in the old building, to avoid differential settlement the new wing should be made an integral part of the old structure with rigid interconnection of the two steel frames. This seemed logical because here the sand foundation contrasts sharply with the soft material under the PG&E Building.

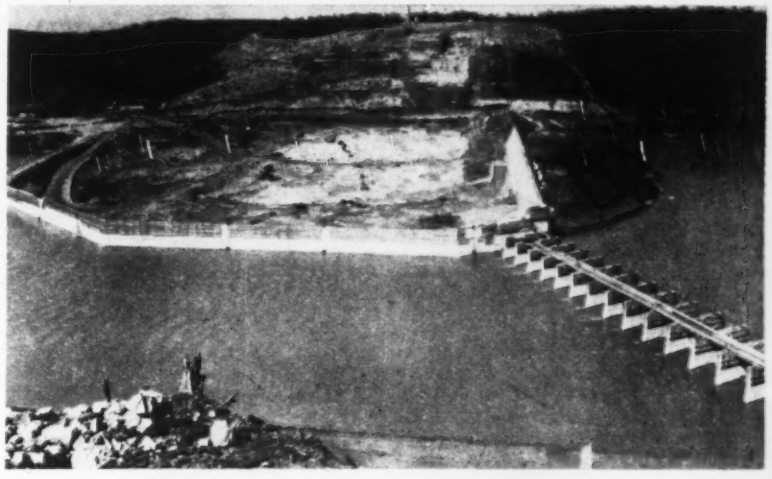
In view of the different solutions now being worked out for such problems as these, the prospect is that San Francisco will afford some interesting exhibits if another earthquake provides full-scale test data on seismic resistance in modern tall buildings. . . . *N.A.B.*

Houston plans regional construction exposition

Plans for a construction industry exposition that will draw from four Southwestern states were announced recently by the Houston chapter of the Associated General Contractors.

The exposition is to be held in the Houston Coliseum Oct. 2-10, utilizing the 160,000 sq.ft. of floor space in the building and an additional 200,000 sq.ft. of adjoining open-air space. Industries and industry representatives in Texas, Oklahoma, Arkansas and Louisiana are expected to participate. The show will feature innovations in equipment.

Russell W. Mix, president of the C. B. Hubbard Construction Co., has been named chairman of the Houston AGC executive committee in charge of arrangements for the exposition.



***Concrete Cofferdam**—Enclosing the site of the right abutment of Bull Shoals Dam on the White River in northern Arkansas, this concrete cofferdam has been completed preparatory to operations on the main structure. The dam will be a half-mile long, 263-ft.-high concrete barrier, costing about $70,000,000.*

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

Ohio cities face huge sewer and storm drain expenditures—Los Angeles renews contract lettings on Hyperion work—Smoke control projects develop—State of Washington considers vehicular tunnel under Puget Sound—Other municipal affairs

As a corollary of seasonal thaws that last week brought abnormal water run-offs through the Midwest, many cities faced relatively large expenditures for storm sewer construction.

Others, many of them continuing long-range programs, went ahead with plans for new sewerage works and systems.

Apparently hardest hit and most under criticism were three Ohio cities—Cleveland, Toledo and Akron. At Cleveland, where an inadequate storm-sewer system has long been under fire, Service Director Sam David estimated that the city must spend about $7,000,000 to rebuild and renovate its system. A recent rainfall of 2¾ in. nearly stopped the entire city, with many homes flooded and some business areas near the edges of the city almost buried in mud washed down from surrounding hillsides.

Toledo, also faced with the problem of large areas where storm water remains standing in the streets, was told by H. A. Nelson, city sewer engineer, that the city must spend about $40,000,000 for an "adequate" sewer system. He reported that the range of sewer adequacy was from 25 percent in the Ironville district to completely inadequate in the Lagrange St. area.

At Akron, Ohio, community leaders met with Mayor Charles E. Slusser to urge approval of a mill sewer tax charter amendment to be submitted to voters on May 4. The amendment would permit the city council to adopt the added levy for five years and would produce an estimated $3,650,000 for use in constructing sanitary and storm sewers.

As to sanitary sewer developments, the city of Los Angeles last week instructed its Board of Public Works to continue letting contracts for the submarine outfall sewers and treatment plant at Hyperion. Contracts had been held up for more than two weeks while the council studied various economy measures. The cost, once estimated at $30,000,000, may now be as high as $40,000,000, according to the board.

At Salt Lake City, Utah, the Salt Lake County sewer project has been definitely abandoned, within a month after project engineers optimistically had reported construction would start late in March. (*ENR* March 11, vol. p. 404). County commissioners, who said that a majority of the property owners in the proposed sanitary district were opposed to the project, recently rejected all bids as too high.

San Diego, Cal., released advertisements for bids for construction of an addition to and enlargement of its sewage treatment plant at an estimated cost of about $1,000,000.

Other developments included: The Greater Peoria, Ill., sanitary and sewage disposal district announced it received no bids at the scheduled letting March 17 for the construction of a sanitary sewer project, and said a new date for bids would be set soon; **Logan**, W. Va., planned a $500,000 sewage project; and South Bend, Ind., took initial steps for construction of its $8,000,000 disposal and treatment system when it authorized a bond issue of $1,500,000 to finance start of the plant.

Acme newspictures

***Weather Maker**—Any type of weather condition can be simulated in this newly-installed "weatherometer" at the New York Public Works Department's laboratory at Albany, N. Y. Here strips of metal for use in highway construction are tested to determine resistance to extremes of atmospheric conditions.*

And at Louisville, Ky., engineers of the Metropolitan Sewer District warned that any cut in sewer rental charges would prevent the district from carrying out its 10-year, $20,000,000 program of construction.

City Planning

Attempts to prepare new and more workable building codes held the spotlight in many cities.

At Milwaukee, Wis., a proposed new building code was under almost continual fire in an eight-series meetings held to hear public comment. The latest attack was from a group of building constructors, who criticized the code by saying that it should have been written as a performance code, rather as a specification-type measure.

Also under fire was a new building code at Westfield, Mass., where builders said that the code has forced increased construction costs. New rules, which call for 10 in. cellar walls instead of the previously approved 8 in. walls, have caused rejection of many building permits, officials said.

Other planning developments included the announcement by the American Municipal Association which said that many cities are now acting to tighten safety and sanitary regulations for house trailers used as semi-permanent dwellings, in view of the continuing housing shortage which has forced many families to use trailers as more or less permanent quarters.

Smoke Control

Following the lead of many other U. S. cities, residents of Boston, Mass., last week appealed to the state legislature for further relief from smoke and soot.

Appearing before a legislative committee in support of a measure to set up an advisory council to deal with large corporations that refuse to remedy heavy smoke conditions, the group urged that a measure be passed to give authority to force compliance. An advisory council existed from 1930 to 1934, but was eliminated in a state economy wave. George C. Doyle, director of the city's smoke inspection division, said that his agency now attempts to control smoke by means of inspections and suggestions, and has the right to take court action. He said, however, that no court action had been taken during his term.

At Minneapolis, Minn., the newly organized advisory committee on smoke abatement authorized T. A. Podolske, Minneapolis smoke inspector, to obtain copies of smoke ordinances from other cities to serve as a guide for a future local ordinance. At Los Angeles, a three-man hearing board was sworn in to consider appeals from industries seeking variances under the city's new smoke control ordinance. The board includes two attorneys and one engineer, Miner L. Hartmann.

The St. Louis, Mo., board of aldermen passed two bills designed to clear the city's atmosphere of fly ash and other pollution. One bill amends the city's existing smoke control ordinance to permit only one-third of a grain of fly ash per cu.ft. of flue gas, and calls for the inclusion of all types of fuel burners under terms of the ordinance. The second bill makes it illegal to emit ashes, cinders, dust, dirt, grime, acids "or other substance in such manner or in such amount as shall be detrimental to or endanger the health, comfort, safety, or welfare of the public."

***Water Supply Conference**—Meeting at Phoenix, Ariz., with representatives of the city and the Salt River Valley Water Users Association, these Bureau of Reclamation engineers tentatively approved an agreement whereby the city will spend $800,000 to install floodgates on Horseshoe Dam, raising the reservoir's capacity and assuring the city of an 20,000 ac. ft. of water annually for domestic use. The city voted funds for the work in 1946, but approval has been delayed pending an agreement between the Bureau and the city. Left to right are: E. A. Moritz, regional director; E. G. Nielsen, regional planning engineer; and John McB. Meade and M. N. Nathanson.*

Traffic Problems

Spurred by recent interruptions in ferry service in Puget Sound, particularly across Agate Pass (*ENR* April 1, vol. p. 479), the state of Washington said last week it would institute a ferry system on Puget Sound, and is investigating the feasibility of twin traffic tunnels below the sound.

Cost of the Seattle ferry system, including about ten ferries, docking facilities and a bridge across Agate Pass, is estimated at between $12,000,000 and $15,000,000. Bids for construction of the ferries are expected to be called soon although actual operation of the system will not begin until next year.

The two vehicular tunnels would cost about $40,000,000, Governor Mon C. Wallgren said, and that cost seems to be prohibitive at the present time. The tube would be from 12,800 to 14,000 ft. long, extending from Seattle to either Vashon or Bainbridge islands, and a suspension bridge would extend from the island to the west side of Puget Sound.

At Boston, Mass., the state legislative Committee on Metropolitan Affairs approved construction of a $6,200,000 express parkway along the Charles River to carry traffic through the congested Back Bay district of Boston.

The Mystic River Bridge Authority awarded contracts totaling $13,273,000 for construction of a bridge between Charlestown and Chelsea, Mass., including a $1,674,000 contract to the Merritt, Chapman & Scott Corp. for river piers; a $4,686,000 contract to the Bethlehem Steel Co. for the superstructure, and a $6,142,000 contract to the American Bridge Co. also on superstructure.

At Pittsburgh, Pa., Mayor Lawrence issued orders to the police department to tag buses that do not seek off-street parking areas, as part of the city's campaign to force parked buses out of the narrow, congested downtown streets; The Hartford, Conn., city engineering department began work on major traffic improvements to include a vehicular tunnel under the intersection of Pearl and Ford streets.

And at Toledo Ohio, the state highway department announced that it was beginning preliminary surveys on a new $7,000,000 bridge that will become part of the proposed East Toledo freeway.

Water Supply

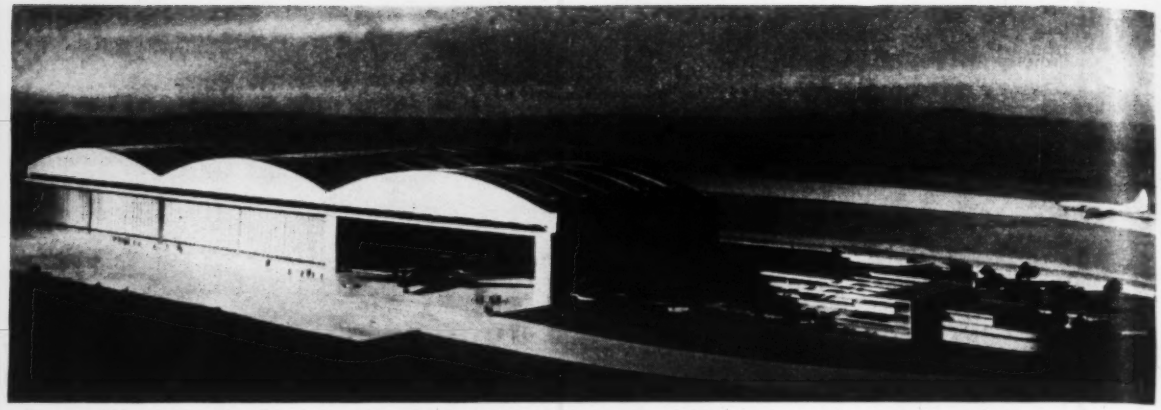
A plan for immediate development of what was called the only unused water supply resources in the drouth stricken south coast area of Santa Barbara County, Calif., was reported last week by Secretary of the Interior J. A. Krug.

Mr. Krug said that the Bureau of Reclamation has approved construction of the proposed Cachuma Reservoir on the Santa Ynez River to conserve and regulate the runoff of winter rains, and construction of related conduits and distribution systems to bring irrigation water to 30,000 acres of farm lands and municipal water to the city of Santa Barbara. The project would include construction of a 210-ft. high dam, creating a 210,000-ac-ft. capacity reservoir for irrigation and domestic water.

Meanwhile, many other cities prepared to begin work on water supply problems. The East Bay Municipal Utility District at Oakland, Calif., awarded a $765,000 contract for driving piles to support the steel pipe of a second Mokelumne aqueduct line across the San Joaquin River delta between Indian Slough and Holt. Ben C. Gerwick, Inc., will drive 4,780 reinforced concrete piles over a 10¼-mile stretch, at depths varying from 20 to 55 ft.

Other developments during the week included: The city council at Columbus, Ohio, ordered a detailed construction and cost appraisal survey of a new reservoir site on Big Walnut Creek, where the city would build a multiple-purpose, $8,000,000 dam, to assure additional water supply; the city of Albuquerque, N. M., completed preliminary tests on a new steam turbine pump to supplement the city's water supply; and directors of the Metropolitan Water District at Salt Lake City, anticipating completion of the Provo River project within two years, authorized study on construction of a distribution reservoir and filtration plant.

The Honolulu, T. H., board of water supply observed its 100th anniversary on March 31, by inviting the public to inspect the present installations which have grown from a single lead pipe put into operation on March 31, 1848, to carry water to whaling ships in Honolulu harbor. The present system cost more than $18,000,000.



New assembly plant in England for 125-ton airplanes provides large unobstructed working areas.

English Plant for Building Giant Planes

Spectacular size and novel design mark an aircraft assembly plant under construction at Filton, England, as an outstanding structure. It will house Bristol Aeroplane Co. production operations on the giant 125-ton Brabazon Mark I.

The 1,052-ft. wide building is composed of three bays of equal width, but with different depths. The two side bays used for final assembly and flight preparation, are 270 ft. deep, and the center bay, used for fabrication and subassembly, is 420 ft. deep. Floor area totals 7½ acres.

Inclosing 33,000,000 cu.ft. of space, the structural frame is steel, the side walls are asbestos-cement with continuous strip windows, and the roof is waterproofed, insulated steel deck. The rear wall, which faces north, contains a double-glazed window 50 ft. high and 1,045 ft. long. It also has entrances for employees and deliveries.

On the south, bordering a concrete apron, continuous sliding-folding aluminum doors close off an opening 1,045 ft. long and 65 ft. 9 in. high. Each of the two door sections per bay can move in two directions, to form either one 330-ft. entrance or two 143-ft. openings. With each section motivated by two 5-hp. electric motors, the doors, which weigh a total of 220 tons, can be fully opened in 2 min.

The final design of the plant was determined after considerable investigation of various structural types. Factors considered included economy of materials and labor, speed of erection, clear-span and height requirements and support of cranes. Steel arched rigid frames with pinned supports and tied haunches were selected as offering the best solution.

Design saves space and materials

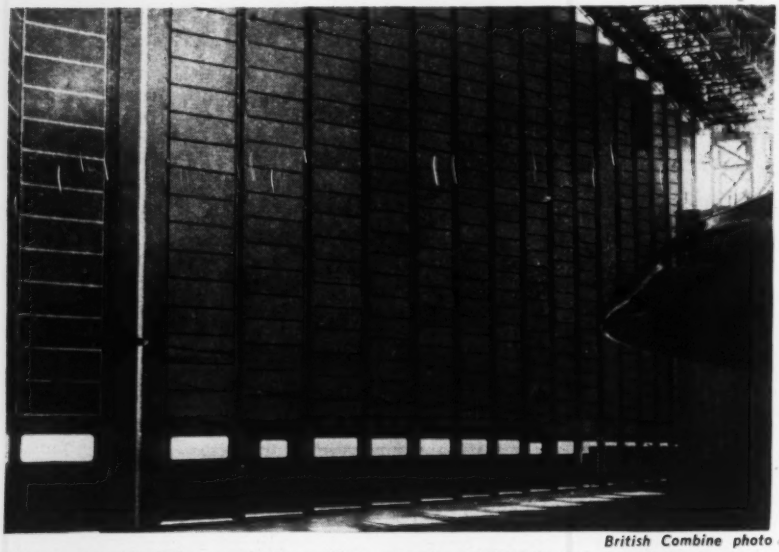
Spaced at 50-ft. centers, 14-ft. deep arched frames of lattice-box-girder construction span each bay to give 331-ft. clearance in each, with a total of 358 ft. between pin supports. These pins are 10 in. in diameter and are sunk 2 ft. 6 in. below floor level in open inspection pits.

Legs of the frames rise vertically to the eaves, 82 ft. above the floor, and the arch curves to an apex 116 ft. high. Frames in the side bays are 8 ft. wide and in the center 6 ft. wide, making it possible to nest interior 6-ft. legs inside the 8-ft. ones. Without interfering with structural independence of adjacent frames, this arrangement effected considerable saving in floor area.

Another novel feature of the design is the use of haunch ties, 75 ft. above the floor. Advantages accruing from this include controlled outward spread at the haunches and greatly reduced horizontal thrust at the pins. Frames weigh only 150 tons apiece.

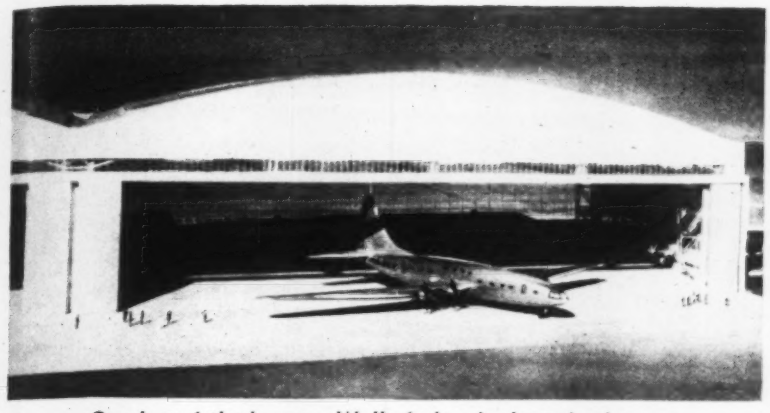
Deep lattice girders brace the frames transversely and support intermediate girders that in turn carry purlins. Lattice girders are also used to brace the haunch ties and support crane beams. Total weight of steel is 7,000 tons.

In the center bay, there are four independent 12-ton cranes, each covering a quarter of the bay width. They can be synchronized for switch-over of lifting devices, or can be locked together for joint operation in pairs.



British Combine photo

Motor-operated doors, closing off an opening 1,045 ft. long and 65 ft. 9 in. high, can be fully opened in 2 min.



One bay of the hangar. Wall of glass is shown in the rear.

To keep floor areas free of obstructions, multi-story offices, locker rooms, lavatories and store rooms are located between the interior frame legs. These facilities are reached by stairs and elevators, which also furnish transportation to the roof, service catwalks and cranes.

Footings were designed to accommodate vertical reactions of as much as 420 tons and horizontal thrusts of 200 tons. Under each pair of nesting legs, a 30x50-ft. by 9-ft. deep concrete block weighing 900 tons is required. Excavation for the frame footings amounts to 10,000 cu.yd., while the total weight of concrete is nearly 10,000 tons, and of steel reinforcement 100 tons.

Unit heaters help warm plant

Conditions in the structure make heating and ventilating a problem. The solution was found in the use of modified unit heaters, high-velocity projection nozzles and controlled fresh-air intakes along the side walls. Preheated as required, air is drawn in at low level through a set of three fan impellers, flows upwards through three sections of a vertical duct, and is discharged through nozzles on the rigid-frame legs 60 ft. above floor level.

In addition, groups consisting of four nozzle projectors each are mounted on the haunch ties to redistribute the warm air that would otherwise be wastefully dissipated at the roof. Preheaters are incorporated only in the groups over the main doors. These preheaters automatically operate with the opening of the doors to provide a curtain of warm air.

The various unit heaters utilize steam from four oil-fired boilers—one of which is a stand-by—located in a separate boiler house. Completely automatic, each boiler is capable of converting 16,500 lb. of 180-deg. F. water per hour to steam at 60 psi.

Unit heater fans are utilized in the summer to insure adequate fresh-air intake and air movement.

Power supply flexible

Electrical energy is supplied by a utility company. Two 11,000-v. incoming lines feed a substation equipped with four transformers of 750-kva. capacity, arranged for automatic tap changing under load. Low-tension switchgear consists of four sets of busbars with four sectionalizing switches interposed to form a ring.

Power supply to work areas was designed to allow for maximum flexibility in production layout. Distribution feeders are located in sub-floor ducts, which are shared with mains carrying compressed air for pneumatic tools. Duct covers can be replaced, where desired, with special slabs having power and air outlets, as well as cable and flexible hose connections to duct mains. Thus, power supply at various ratings can be obtained any place in the plant at any time.

Two types of lighting combined

The power load for lighting alone is 1,175 kw. Designed to give 25 ft.-candles at working level in the center bay and 20 ft.-candles in the side bays, lighting units are arranged in clusters composed of one 1,500-watt incandescent lamp and two 400-watt mercury-vapor lamps. The combination was chosen to produce an effect closely approaching daylight. There are 450 such groups.

Mounted on an overhead catwalk network 75 ft. above the floor, the clusters are spaced 16 ft. apart in the center bay and 20 ft. in the side bays. A continuous row of fluorescent lamps is mounted at the window soffit, 15 ft. above the floor, at the glazed end of the plant.

In connection with the plant, a runway 300 ft. wide and 8,250 ft. long was built to the north.

The designers

Eric Ross of Filton House, Bristol, is the architect; David du R. Aberdeen, F. Taylor and P. N. Taylor are the planning and designing collaborators; and Brian H. Colquhoun & Partners of London are the consulting engineers on the project.

Steel arched rigid frames of lattice-box-girder construction span 358 ft. between pin supports with a total rise of 116 ft.

MEN AND JOBS

William F. Neale has been named chief engineer of the metropolitan district of Baltimore County, Md. He has been engineer in charge of civil water and sewer designing for Whitman, Requardt & Associates of Baltimore. He was graduated from Baltimore Polytechnic Institute in 1930 and received a civil engineering degree from the University of Maryland in 1934.

William E. Whitford, director of the business division and engineer at Duke University, Durham, N. C., since 1928, has been named director of operations and maintenance and chief engineer. He received his civil engineering degree at Duke in 1927.

D. W. Winkelman, president of D. W. Winkelman Co., Syracuse, N. Y., and vice-president L. Cain study the progress on their contract for a section of the New York State Throughway near Syracuse.

Thomas P. Lusby, a graduate of Nova Scotia Technical College, has been appointed Chief Engineer of the Nova Scotia Department of Public Works. Mr. Lusby, for the last 18 years has been in the construction business in Halifax.

The San Diego Harbor Commission has appointed **John F. L. Bate** as acting port director, succeeding **Joe Brennan** recently resigned after 30 years. Bate has been an engineer in the city's harbor department for the last year. He had been a resident engineer inspector in 1940 for the San Diego unified school district.

Merton Messer, engineer with the Alabama State Highway Department, has joined the sales organization of Jack Yauger & Co. Birmingham.

William C. Renshaw, construction engineer with the San Francisco water department for the last 18 years, recently became city water engineer for Inglewood, Calif. He was graduated from the California Institute of Technology in 1920 and was on leave from the San Francisco water department from June, 1942, to October, 1945, to head Navy construction in the 12th Naval District.

Resignation of two engineers of the Pennsylvania State Highways Department has been announced. They are **Karl F. Chapel,** of Youngsville, resident engineer assigned to headquarters at Harrisburg, and **James W. Daubert,** of Allentown, district township engineer in the bureau's Allentown District office.

When Lt. Gen. Raymond A. Wheeler visited Atlanta, Ga., to speak on developing the resources of Georgia he visited the multi-purpose Allatoona Dam project at Cartersville. Seen at the downface side are, left to right; Col. Joseph H. Twitty, district engineer at Mobile, Ala.; General Wheeler, Chief of Engineers; Charles J. Jackson, resident engineer at the dam; and Col. Mason J. Young, division engineer, South Atlantic Division, Atlanta.

William E. Reed, Ogden, Utah, senior highway engineer, Public Roads Administration, has transferred to Springfield, Ill., where he will be design engineer for the Illinois District, PRA. He replaces Edwin Friese, highway engineer, who has transferred to Indianapolis, Ind., where he is design engineer for the Public Roads Administration Indiana district.

Harold J. Stahl, associate highway engineer, Public Roads Administration has transferred to Springfield, Ill., from San Francisco, Calif., where he has been engaged in Forest and Park work for PRA for a number of years.

George L. Johnston is the Oklahoma Highway Department's farm-to-market chief engineer and his 22 years employment with the department qualify him for handling the 10,442-mile project. He is a graduate in engineering of the University of Oklahoma and his first department job was resident engineer at Ponca City. He was assistant Osage County engineer when he entered the state's service.

John B. Murphy, superintendent of public works in Alexandria Bay, N. Y., for the last year, has resigned effective April 1.

Col. B. B. Talley, U. S. district engineer at Louisville, Ky., will leave about Aug. 1 to enter the National War College, Washington, D. C. as a student. His successor will be Col. John L. Person, West Point, 1929, formerly in the office of the Chief of Engineers as assistant to the head of the Civil Works Division.

Francis J. Magnuson, city engineer of Rochester, Minn., has resigned, effective April 1, to go with William Ebertz, Inc., general contractors, St. Paul, Minn.

Edward E. Johnson, Hastings, Neb., has become Adams County engineer, succeeding **Gerald Brown.**

John C. Keefe, Northampton, Mass., city engineer since 1941, except for time spent in war service, has resigned.

Leo L. Coulter has been appointed assistant Thurston County engineer at Olympia, Wash., to succeed the late Otis G. Murray. He has been a field engineer for the county the last year

after previously doing engineering work for state departments.

Eugene Halpin, Jr., for the last 24 years public works commissioner of White Plains, N. Y., will retire on May 1. Mr. Halpin has been in public service for 40 years—30 years with the city, four with the former village of White Plains, and six with the Bronx Valley Sewer Commission. It is expected that Deputy Commissioner **William I. Collyer** will succeed Mr. Halpin and that **Eric Andrews,** principal engineer in the department, will become deputy commissioner.

James K. Kaufman, Little Rock, has been appointed engineer for the Hospital Division of the Arkansas Health Department. He formerly was chief engineer and operating manager for a cement company in Denver, Colo. He will supervise the construction of federal aid hospitals in the state.

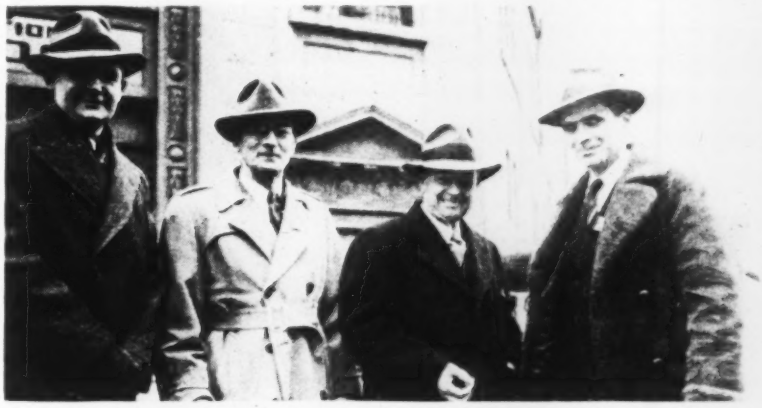
Alex Sonnichsen, a civil engineering graduate of Washington State College in 1946, has been appointed assistant city engineer at Walla Walla, Wash. He previously had been employed in the bridge department of the state highway department at Olympia.

P. L. Pratley, Montreal, Que., consulting engineer, has been appointed to study the bridging needs of Edmonton, Alta. Pratley who designed the Lion's Gate Bridge over the First Narrows in Vancouver and the Jacques Cartier Bridge over the St. Lawrence, is a consulting engineer for the dominion government, and is currently working on the Peace River suspension bridge at Fort St. John, B. C.

Francis A. Davis has been appointed purchasing agent for the Virginia Department of Highways, succeeding the late William W. McClevy. Mr. Davis, field and personnel engineer since 1944, has been with the department since 1919. As purchasing agent he will head one of the department's six divisions. Mr. Davis served as resident engineer in Amherst, Warrenton, and Franklin, and for eight years was engineer-in-charge of the Salem highway construction district. He is an alumnus of the College of William and Mary, where he was a pre-engineering student.

Phil W. Myers, formerly office engineer, has been appointed acting King County engineer at Seattle, Wash., following the resignation of County Engineer C. Glen Smith. He joined the department as a chairman in 1929.

Three engineers who are guiding the destinies of the New York City Housing Authority, biggest municipal operation of its kind in the world: (left to right) Thomas F. Farrell, Chairman; John Riley, director of development, and James H. England, executive director. Mr. Farrell, who as a major general was the Army's atomic bomb expert, became head of the authority a few months ago.



At a recent inspection of New York City's Sanitation Department shops by the New York-New Jersey Metropolitan Chapter of the American Public Works Association were: (left to right) Samuel S. Baxter, assistant chief engineer, Bureau of Engineering, Surveys and Zoning, Philadelphia; E. J. Cleary, executive editor, Engineering News-Record; Percy B. Sprague, Superintendent of Public Works, Valley Stream, N. Y.; and William B. Foster, engineering editor, American City.

Elected in St. Paul recently, the camera gives a new angle on these officers of the Minnesota Association of Professional Engineers; (left to right) N. T. Rykken, St. Paul, National director; J. N. Enz, Red Wing, treasurer; Wright Corkroft, St. Paul, president-elect for 1949; and T. S. Thompson, Minneapolis, president.

ENGINEERING SCHOOL NEWS

Tuition raised at Illinois Tech and McGill—New engineering school buildings—Faculty retirements and additions

School costs increase—Two more important institutions have announced increases in tuition rates for next fall.

The Illinois Institute of Technology, Chicago, has brought its fees from $240 to $275 a semester including all charges for full-time students in the division of engineering. President Henry T. Heald pointed out, however, that the increase will not produce sufficient revenue to meet the additional costs of higher faculty salaries and increased expenses of all kinds.

A general increase in the scale of fees for all students of McGill University, Montreal, Que., was announced March 18. Principal G. Cyril James said that McGill has not raised its fees for 13 years, and that it had been hoped to avoid doing so now but that the costs of "everything that the university requires" have risen steadily so that the school faces a deficit of $500,000. The new rates still will not balance the budget Mr. James said, and other means of raising revenues must be sought immediately.

Building plans — New building plans are going ahead at a number of engineering schools.

Construction will start soon on a new building for the College of Technology of the University of New Hampshire at Durham. The state legislature has approved a $2,000,000 bond issue for financing the work.

A $500,000 building to house a new school of engineering at the University of Portland, Ore. is already under way, and a civil engineering building has just been completed at the University of Washington, Seattle. Plans have been drawn for an engineering laboratory building at the School of Engineering at North Carolina State College, Raleigh. The estimated cost with equipment is $1,210,333.

Faculty changes—Recent faculty additions include:

At University of Detroit College of Engineering—Isadore Nusbaum, civil engineering, and Clyde L. Palmer, sanitation; at the School of Engineering, University of Buffalo, N. Y., James L. Turner, associate professor; Maxwell Y. Snow, Lowell P. Bassett, Richard L. Pleuthner, assistant professors; Marvin Breslaw, Richard J. Costello Robert S. First and G. Roger Oehmke, instructors, and Kevin O'Callahan, part-time instructor; at Purdue University, John M. Hayes, associate professor of structural engineering.

John T. Rettaliata has been named dean of the College of Engineering, Illinois Institute of Technology, to succeed James C. Peebles, who has served more than 40 years.

The Virginia Polytechnic Institute has promoted E. George Stern from associate to research professor in wood construction. Mr. Stern, also director of the V. P. I. wood research laboratory.

Extension courses—The Georgia School of Technology, will offer a summer course in industrial hygiene for 20 students, starting June 28. School courses held included: The 30th annual Texas Waterworks and Sewerage Short School was held at Texas A. & M. College recently, in cooperation with the Texas State Board of Health, Southwest Section, American Water Works Association, Texas State Board for Vocational Education, and the Texas A. & M. College.

The first joint sanitary engineering conference of Duke University, North Carolina State College and the University of North Carolina was held recently at Duke, Durham, N. C., with sanitary engineering students and faculty members of the three schools attending. The program emphasized problems and methods used by foreign sanitary engineers in promoting safe water supplies and proper sanitary sewage disposal, and included papers by engineers from Colombia, Brazil, Italy and the Philippines.

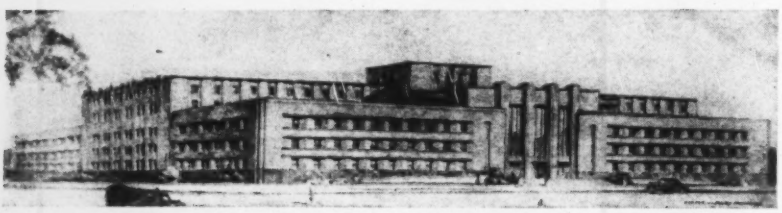
The college of engineering, Rutgers University, in cooperation with the N. J. section of the American Water Works Association and the bureau of engineering of the N. J. State Department of Health, is giving short courses for filter plant and water works operators.

Forty years of service as an engineering educator was celebrated when Erich Hausmann, dean of the college and head of the department of physics of the Polytechnic Institute of Brooklyn, N. Y., was honored by the alumni association at its 85th annual dinner recently. Charles E. Potts, chairman of the corporation of the institute, a member of it for the last 41 years, chairman for the last 26 years, and who was graduated from Polytechnic 56 years ago, was a principal speaker at the banquet.

Dean Hausmann

Research fellowships open—Applications for industrial-waste research fellowships providing tuition, a stipend of $1,200 yearly and a one-month's vacation, will be considered by Rutgers University for appointment on June 1. Fellows will be permitted to take a maximum of 12 credits per semester toward advanced degrees. Inquiries should be directed to Prof. Willem Rudolfs, Nichol Ave., New Brunswick, N. J.

Georgia School of Technology is opening its doors to female students for the first time since its founding in 1885.



Modular Library—The State University of Iowa, Iowa City, Ia., will open bids May 20 for the first unit of its $3.7 million "modular" library building, the architect's rendering of which is reproduced above. The first unit is likely to cost $2.5 million. Changes would mean only adding more modular units. The first unit will have three floors and the volume will be 207,000 cu. ft. The building will rest on 27-ft. piling. Its exterior will be of brick with stone trim. A 3-story entrance design is to be of aluminum and glass brick. The first floor will be of reinforced concrete or steel frame, upper floors of prefabricated steel sections, resting on steel beams carried on hollow metal or structural steel columns. The architects are Keffer & Jones, Des Moines. The director of the library is Ralph E. Ellsworth.

Allocation of cast-iron pipe urged to meet important expansion needs

New York Section of AWWA hears recommendation that federal agency ration cast-iron pipe among utilities—John M. Diven nominated for Fuller Award—J. McClure Wardle elected chairman.

A federal agency similar to the Office of War Utilities, to pass on pipe orders placed by all utilities, should be established, Harry Jordan, secretary, American Water Works Association, told the New York State Section in Syracuse, N. Y., last week.

Mr. Jordan said firm orders for water pipe now amount to more than 1,050,000 tons. This demand exceeds the maximum production achieved by the cast-iron-pipe industry in any previous year. Consequently, under the most favorable production conditions, the backlog of pipe orders can be filled only in a 12- to 15-month period.

In addition, he pointed out that foreign shipments of pipe would undoubtedly be stepped-up under the recently enacted Foreign Assistance Act to aid Europe (ERP). Such shipments, he said, would make it increasingly difficult for American utilities to obtain pipe for needed expansion.

In a round-table discussion on waterworks practices conducted by Simon P. Carman, consulting engineer, Binghamton, N. Y., it was brought out that engineers generally prefer to replace lead goosenecks with copper tubing. Arthur T. Luce, New York Water Service Corp., New York City, declared that lead goosenecks are unnecessary. "It is better practice to run a single copper tube from the corporation cock in the main to the curb box to eliminate a number of joints," he said. He recommended that the tube be looped slightly near the main to provide flexibility.

Several waterworks managers reported that copper tubing had been used successfully for house connections for as long as 25 years.

Boring saves trenching

Another trend brought to light during the discussion was the increasing use of boring or pushing devices to install house connections with a minimum of trenching. Considerable savings, it was reported, can be effected by drilling horizontally and pulling pipe through the hole, or by pushing the pipe from the main to curb box. This practice eliminates the cost not only of much trenching labor but also of a large portion of pavement replacement.

To speed installation of consumer laterials, A. M. Roberts, president, Wanakah Water Co., Hamburg, N. Y., reported that his organization drives a pipe under the pavement with a large pushing machine and pulls a tube through the hole thus formed. He cautioned that in rocky soils it is often necessary to start more than one hole.

John G. Copley, general manager, Elmira, N. Y., Water Board, told how a mine drifter had been adapted to drive house laterals under pavements.

R. G. Yaxley, water superintendent Waterford, N. Y., described the installation of a 34-ft. length of pipe in hard clay under a concrete pavement. A horizontal hole was bored with a 1½-in. cutting tool lubricated by high-pressure water jets. The entire operation including insertion of the pipe was completed in about one-half hour.

Fuller Award for John Diven

For his service to the waterworks profession, John M. Diven, engineer, The Leadite Co., Inc., Jackson Heights, N. Y., was nominated for the George A. Fuller Memorial Award of the New York State Section. Mr. Diven will receive this honor at the national convention of the American Water Works Association in Atlantic City, N. J., on May 3-7.

The following officers will serve for the 1948 term: J. McClure Wardle, superintendent of public works, Hudson, N. Y., chairman; Lewis B. Smith, superintendent of water, Rochester, N. Y., vice-chairman; and R. K. Blanchard, vice-president and engineer Neptune Meter Co., New York City, secretary-treasurer.

Wilder Dam—a correction

The new hearings concerning the proposed new Wilder Dam on the Connecticut River above White River Junction (*ENR* March 25, vol. p. 452) relate to whether the crest shall be at El. 380 or El. 385. The dam itself will be only 59 ft. high, not 385 ft. as indicated in the previous story. Residents of the valley above the dam are opposed to having the pool level at El. 385, claiming that raising it above El. 380 will make 5,000 acres of land unfit for cultivation.

House OK's new atom building funds

An additional $150,000,000 contract authorization for the Atomic Energy Commission is provided in the first deficiency appropriation bill for 1948 (H. R. 6055) passed by the house late last week.

The authority will permit AEC to move ahead with its $1,100,000,000 construction and equipment program (*ENR*, Jan. 1, 1948, vol. p. 3) by making commitments this fiscal year on a total of $260,000,000 in lands and structures—an increase of $144,000,000 over the amount allotted for construction in the original appropriation bill.

The AEC construction program has been accelerated to make it possible to enter into contracts for the additional amount before June 30. Construction obligations to be incurred this fiscal year by each of the five centers of operation, on the basis of the added contract authorization, are as follows:

New York—An estimated $27,068,160 in contracts will be awarded this year out of current plans for $48,109,944 of construction projects to be under-taken in a three-year-period. This includes $21,734,000 for construction of research facilities and $5,334,160 for production and processing facilities.

Santa Fe, N. M.—Construction projects with an estimated value of $74,517,340 are to be placed under contract this year, including $43,066,655 for production and research facilities and $31,450,685 for housing and community facilities at Los Alamos and subsidiary stations.

Oak Ridge, Tenn.—In the current fiscal year, the Oak Ridge office plans to award construction contracts estimated to cost $30,562,167. Projects presently planned total an estimated $241,771,218. The 1948 schedule includes $12,714,125 for production plant and research facilities and $17,848,042 for housing and community construction. The latter sum represents part of a planned long-range building program for the town of Oak Ridge, estimated to cost $175,493,883.

Hanford, Wash.—An estimated $119,768,968 is to be put under contract in fiscal 1948. Included in the estimate for fiscal year 1948 is $68,039,060 for housing and community facilities at Richland, Wash.

Chicago—Construction contracts to be awarded during the current fiscal year are estimated at $10,254,000. The contracts apply to three laboratories, in Du page County, Ill., Berkeley, Calif., and Ames, Iowa.

OBITUARY

James H. Herron, 73, consulting engineer and president of the James H. Herron Co., Cleveland, Ohio, died in Fort Lauderdale, Fla., March 29. A graduate of the University of Michigan, 1909, Mr. Herron held executive positions with several industrial companies, and recently he was active in the formation of the Cleveland Technical Societies Council. During the war he served on the President's national fuel efficiency program. He was also co-author of an extensive report on a program for the expansion of Cleveland's water department.

Bert A. Cole, 74, of Bloomington, Md., a retired civil engineer, died at Indianapolis, March 30. He served with the Corps of Engineers during the Spanish-American war.

John Raymond Hartman, 47, a civil engineer and graduate of the University of Pennsylvania, died March 28 at Elkins Park, Pa.

Albert Clarke Eddy, 70, who retired a few years ago as chief engineer of way and structures for the British Columbia Electric Co., died in Vancouver, B. C. recently. He attended the University of Minnesota, where he studied civil engineering. Going to the Northwest in 1898, he helped build the Great Northern Railroad lines between Seattle and the border. From 1907 to 1910, he was in charge of extensions of the GNR from Blaine to New Westminster, Cloverdale to Sumas and Abbotsford east toward Kilgard and Chilliwack. Mr. Eddy served overseas in World War I as a captain in the 55th Engineers, AEF.

Henry T. Gerdes, 70, president of Gerdes & Co., contracting engineers, a 1902 graduate and former president of the alumni association of Stevens Institute of Technology, Hoboken, N. J., died in New York City, March 31. He founded the Gerdes Fund to help promising young men to obtain an engineering education.

H. Royston Anderson, Upper Arlington, Ohio, civil engineer, died March 24 in Glenarm, Md. At one time he was associated with the North Carolina Highway Department.

Thos. E. Doyle, 85, former president of Dravo-Doyle Co., now the Dravo Corp., died in Pittsburgh, Pa., April 1.

Walter E. Warne, 67, construction engineer who built many important Los Angeles, Calif., buildings, died there March 25.

Charles E. Flanagan, 66, chief of the Philadelphia, Pa., Bureau of Building Inspection since 1931, and an employe of the bureau since 1912 died April 1. He was at one time with the American Bridge Company.

Report on Oregon's navigation needs

Col. Theron D. Weaver, North Pacific division engineer, has announced completion of a report compiled by Army Engineers on the navigation needs of Oregon, for submission to the Board of Engineers for River and Harbors.

The report covers all rivers, bays and inlets along the Oregon coast with a view to ascertaining whether additional surveys of harbors are warranted in the interest of deep draft navigation.

The report points out that modification of projects at harbors to provide deeper channels has kept pace with growth of the ports and with existing and prospective commerce. Authorized deep-draft facilities include these channels: 40-ft. at entrance to Columbia River, 18-ft. at Tillamook Bay, 26-ft. entrance and 22-ft. river channel at Umpqua River, and 40-ft. entrance and 30-ft. inner channel at Coos Bay. Separate studies are under way to determine the need for improved deep-draft channels at Port Orford and Rogue River. An improved deep-draft channel at Chetco Cove is held not feasible at this time.

Attention is called to small-boat harbors recently authorized at Astoria, Yaquina Bay and Winchester Bay to provide facilities for the growing deep sea fishing industry.

MAJOR MEETINGS

Concrete Reinforcing Steel Institute, Edgewater Gulf Hotel, Edgewater Park, Miss., April 19-24.

Building Officials Training School, Drake Hotel, Chicago, Ill., April 26-29.

State Sanitary Engineers, Annual conference with Public Health officials, Washington, D. C., April 26-30.

National Public Housing Conference, Inc., Hotel New Yorker, New York, N. Y., May 3-5.

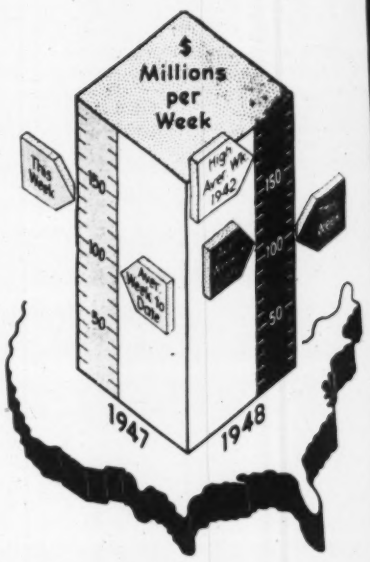
American Water Works Association, 1948 conference, Atlantic City, N. J., May 3-7.

Second Highway Transportation Congress, Mayflower Hotel, Washington, D. C., May 6-7.

Illinois Conference on Surveying and Mapping, Navy Pier, Chicago, Ill., May 7-8.

Society for Experimental Stress Analysis, The Roosevelt Hotel, Pittsburgh, Pa., May 27-29.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only (Thousands of Dollars)

	Week of Apr. 8 1948	Cumulative 1948 (15 wks.)	Cumulative 1947 (15 wks.)
Federal	$13,884	$334,658	$130,455
State & Mun.	54,965	585,689	416,456
Total Public	$68,849	$920,347	$546,911
Total Private	24,951	816,931	896,925
U. S. Total	**$93,800**	**$1,737,278**	**$1,443,836**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1948 (15 wks.)	Cumulative 1947 (15 wks.)
Waterworks	$2,580	$45,138	$40,417
Sewerage	5,062	49,460	25,955
Bridges	1,406	82,204	40,230
Highways	31,537	221,072	174,065
Earthwork, Waterways	7,085	154,898	66,617
Buildings, Public	15,090	306,919	142,449
Industrial	7,529	267,610	232,957
Commercial	16,559	474,193	544,489
Unclassified	6,952	135,784	176,657

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1948 (15 wks.)	Cumulative 1947 (15 wks.)
NON-FEDERAL	$955,213	$475,761
Corporate Securities	551,984	184,438
State and Municipal	403,229	291,323
Total Capital	**$955,213**	**$475,761**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '48	438.41	210.73
Building Cost	Mar. '48	329.63	177.80
Volume	Mar. '48	250	110